1. A method for operating an automation system,
   -the automation system having at least one input unit for
   receiving process signals and at least one output unit
   for driving external peripherals which are
   communicatively interconnected via a bus,
characterized in that
-      at least one of the input units and at least one of the
       output units are constructed as failsafe input unit (EE)
       and failsafe output unit (AE), respectively;
-      the failsafe input unit (EE) transmits a telegram (T) to
       the failsafe output unit (AE) at predetermined times;
-      the telegram (T) includes at least one useful information
       item (TN), one destination point code (TT) designating
       the addressed output unit (AE) and one origin code (TS)
       designating the transmitting input unit (EE);
-      the output unit (AE) interprets the continuous reception
       of the telegram (T) as an indication of an intact
       communication relationship, and otherwise shifts the
       connected peripherals into a safe state.

2. A failsafe data input device having at least one input
channel for connecting peripheral sensors for use in a method
for operating an automation system as recited in Claim 1,
characterized in that a test circuit is provided which
triggers a test procedure at predetermined times and, in so
doing, effects a status change for at least one of the input
channels of the failsafe data input device, an internal logic
monitoring the status change and, if necessary, outputting an
error message, the status change effected by the test circuit
being canceled again at the end of the test procedure, and the
test procedure being completely transparent for reading out
the affected input channel.

3. A failsafe data input device having at least one input
channel for connecting peripheral sensors for use in a method
for operating an automation system as recited in Claim 1,

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characterized in that the at least one input channel is designed to be antivalent.

4. A failsafe data output device having at least one output channel for connecting peripheral actuators for use in a method for operating an automation system as recited in Claim 1,
characterized in that a processing unit is provided for processing user-designable logic operations, the processing unit evaluating the useful information (TN) of a received telegram (T), subjecting the useful information to the user-designable logic operation and driving the at least one output channel in accordance with the result of the logic operation.

5. The failsafe data output device as recited in Claim 4, characterized in that the processing unit monitors the time sequence of the process data transmitted with the useful information (TN) and drives the at least one output channel only when the time sequence of the data required for driving the output channel lies within predetermined tolerances.

6. The failsafe data output device as recited in Claim 4 or 5, characterized in that a monitoring circuit constructed as watchdog and monitoring the processing unit is provided, the monitoring circuit shifting the at least one output channel into a safe state as soon as a malfunction of the processing unit is detected.

7. The failsafe data output device as recited in Claim 6, characterized in that the output channel, which can be driven by the processing unit, is constructed as a readback output channel, that the signal which can be supplied to the output channel can also be supplied to the monitoring circuit, that the monitoring circuit compares the signal supplied to it and the signal read back from the output channel and, in response to deviations, shifts the affected output channel or all output channels into a safe state.

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